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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,694	03/29/2004	Arifteen Bongso	17559	1367

23389 7590 02/07/2008  
SCULLY SCOTT MURPHY & PRESSER, PC  
400 GARDEN CITY PLAZA  
SUITE 300  
GARDEN CITY, NY 11530

EXAMINER

TON, THAIAN N

ART UNIT	PAPER NUMBER
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1632

MAIL DATE	DELIVERY MODE
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02/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/811,694

Applicant(s)

BONGSO ET AL.

Examiner

Thaian N. Ton

Art Unit

1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 76,79,80,82-84,93-96,101 and 102 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 76,79,80,82-84,93-96,101 and 102 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/7/07 has been entered.

Applicants' Amendment and Response, filed 12/7/07, has been entered. Claims 76, 80, 82-84 are amended; claims 81, 97 are cancelled; claims 101-102 are newly added; claims 76, 79, 80, 82-84, 93-96, 101 and 102 are pending and under current examination.

### *Election/Restrictions*

Applicant's election with traverse of Group IV (claims 76-79) in the reply filed on 6/12/06 is acknowledged. The traversal is on the ground(s) that the Examiner has not shown that the claimed inventions are independent and distinct, so as to justify the restriction requirement.

Applicants have cancelled claims that relate to Groups I-III.

### *Priority*

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Australia (No. PR8028, PS0789, PS1812) and on September 28, 2001, February 28, 2002, and May 16, 2002, respectively. Applicants have provided a postcard to show that the certified copies have been accepted by the PTO, however, the Examiner responds that no certified copies are in the record.

Applicants state that they will provide the certified documents in due course.

Applicants are requested to submit the certified copies again, if possible, in order to make the record complete and for the Examiner to determine Applicants' claim for foreign priority.

*Claim Objections*

Claim 102 is objected to because of the following informalities: the term "fibroblast" is misspelled on the top of p. 4, 1st line of the claims filed 12/7/07. Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

The prior rejection of claims 76, 79, 80, 83, 84, 93 and 94 are rejected under 35 U.S.C. 112, first paragraph, because the specification, for enablement withdrawn in view of Applicants' amendment to the claims which now recites that the human fibroblast feeder cells are obtained from a differentiated human tissue.

The prior rejection of claims 94-97 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement is withdrawn in view of Applicants' amendment to the claims which no longer require using a fibroblast feeder layer produced from an adult fibroblast feeder cell.

*Claim Rejections - 35 USC § 112*

The prior rejection of claims 95-97 under 35 U.S.C. 112, second paragraph, as being indefinite is withdrawn in view of Applicants' amendment to the claim, which no longer requires adult fibroblast feeder cells.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 79, 83, 84 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 79 is unclear. The metes and bounds of the claim cannot be determined. The claim recites that "the medium" comprises KO-HS. It is unclear which medium this refers to – the resultant conditioned medium, of the medium selected from the Markush delineated in claim 76. If this medium refers to the medium delineated from the Markush group, it is further confusing because Markush groups, nature, refer to closed language, whereas "comprising" is open language (see MPEP 2111.03). Therefore it is contradictory how the media - which would be in a closed group, could then "comprise" KO-HS (which would be open language). Appropriate correction is required.

Claim 83 is unclear. The claim refers to human fibroblast feeder cells of claim 80, which provides a Markush group of feeder cells - human skin fibroblast cells, human muscle fibroblast cells and a combination thereof. Claim 83 refers to adult skin fibroblast cells, which are not found in the Markush group. Therefore, it is unclear what the metes and bounds of this claim encompass. Claim 84 is similarly unclear.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Applicants provide arguments with regard to both §102 rejections (Xu 2002 and Xu, '048 patent). These arguments have been fully considered, but are not persuasive. The Examiner addresses both of these arguments below.

*Applicants' Arguments.* Applicants argue that Xu does not anticipate the claimed invention because there are distinctions between the conditioned media of Xu and the instantly claimed conditioned media, namely in that there is no disclosure relating to the use of human feeder cells obtained from differentiated tissues (p. 9 of the Response) and that, there is no basis to conclude that the disclosures of Xu are sufficient to make a *prima facie* case of anticipation. In particular, Applicants argue that Xu's fibroblasts are not true fibroblasts from differentiated tissue which are presently employed to produce the instantly claimed medium, therefore the conditioned medium of Xu is patentably distinct from the instantly claimed media (p. 10 of the Response). Applicants argue that Xu teaches "fibroblast-like" cells, and that the key distinction between the hEFs and MEFs as disclosed by Xu is that only mEF are described as fibroblasts, and that therefore, Xu acknowledge the difference between true fibroblasts and undefined fibroblasts-like or muscle cell-like feeder cells. Applicants argue that Xu obtained hEFs by differentiating hES cells and removing elongated cells that are arbitrarily referred to as fibroblast-like, and that one of ordinary skill in the art would readily acknowledge the difference between the human feeder cells and true human fibroblasts described and in the claimed invention. Applicants argue that the fibroblasts from the conditioned medium of Xu were genetically modified with TERT, which is not required of the instant invention, and that the '048 patent shows that Xu's cells are derived from differentiating embryonic stem cells and are in a premature state, and would not produce the same products, and would therefore be required to be maintained in a premature cell type.

*Response to Arguments.* These arguments are not persuasive. The arguments of counsel cannot take the place of evidence in the record. See *In re*

Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965) and MPEP §716.01. Applicants have not provided an appropriate affidavit or declaration supporting that Xu's fibroblast cells, or the conditioned medium produced by these cells would not be a conditioned medium that could derive and culture hES cells, as required by the claims. The ordinarily skilled artisan would readily be apprised of the morphology of a fibroblast cell, therefore, Xu's cell is not "arbitrarily" referred to as a fibroblast-like cell but that this would be based upon the working knowledge of the ordinarily skilled artisan, with regard to fibroblast cells in general; and in particular, the art of culturing human ES cells. Regardless, Xu produce a media that meets the limitations of the instantly claimed invention.

The claims are product-by-process claims. Therefore, the source of the fibroblasts – from an ES cell, or from differentiated tissue – does not impart patentable weight upon the resultant product, a conditioned media that is capable of deriving and culturing hES cells in a substantially differentiated state. Clearly, the cells of Xu are sufficient to produce a conditioned medium in which hES cells are able to be maintained in an undifferentiated state. See Figure 3, which compares human ES cells grown on mEFs and in the presence of fibroblast-conditioned medium. Therefore, it is reasonable to conclude that Xu's fibroblast-like cells exemplify fibroblast qualities that would fulfill the limitations of the claims – cells that, when used to condition a medium, can produce a conditioned medium that is capable of deriving and culturing human ES cells. Applicants have provided no discernable differences between of the "true" fibroblast cell of Applicants' invention (isolated from a differentiated human tissue) and the fibroblast-like cell of Xu to show that the resultant, conditioned medium would not have the same properties. Applicants have not provided any evidence to show that the conditioned media of Xu contains different components from that which is instantly claimed. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are

inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In *re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). In the instant case, the claims only require a conditioned medium that can derive and culture hES cells in an undifferentiated state. Xu have taught this medium, and therefore, anticipate the claims.

Applicants' arguments regarding the genetic modification of Xu's cells with TERT is not persuasive. TERT is used to increase the replicative capacity of a cell line, not to "maintain it in a premature state" as asserted by Applicants. See, for example, p. 9, ¶100 of the Xu publication. One of skill in the art would readily recognize that overexpression of telomerase is known to increase the lifespan of a cell. There is no indication in Xu that the cells are in a premature state, and thus require TERT to maintain them in this state such that they could function to condition media. The Examiner provides Bodnar *et al.* (Science, 279:349-352, 16 January 1998) to provide evidence to show that the introduction of telomerase into normal human cells (in this case, retinal pigment epithelial cells and foreskin fibroblast cells) showed an increase in their normal lifespan. See Abstract. One of ordinary skill in the art would recognize, given Xu's (2002) teachings, that genetic modification with TERT would be used to increase the lifespan of the fibroblast-like cells, but not to maintain them in a premature state. Additionally, Xu's (2002) teachings state that genetic modification is an optional, not required step. See, for example, p. 9, ¶99. Applicants' arguments, with regard to the TERT modification of the cells to produce high-quality media (p. 11 of the Response), or that the conditioned media of the current application can derive from a low passage of fibroblast feeders obtained from muscle, skin or fallopian tubal tissue (p. 12) is not persuasive because Applicants are arguing limitations that are not found in the claims. There is no requirement for how many passages are needed. Applicants have not provided sufficient guidance to show specific differences in the resultant



conditioned media that would arise between using Applicants' cells to produce conditioned media, versus using the cells as taught by Xu. The claims merely require a conditioned medium that is suitable for deriving and culturing human ES cells. Xu have clearly taught a conditioned medium that is capable of this, and thus, they anticipate the claimed invention.

Applicants argue that LIF alone is ineffective at maintaining the hES cells in an undifferentiated state in the absence of a feeder layer, whereas Applicants argue that their medium effectively maintains hES cells in an undifferentiated state in the absence of LIF, and that Applicants argue that it appears the conditioned media of Xu also requires LIF to be effective, whereas the instantly claimed media does not. See p. 12 of the Response.

Applicants' arguments are not persuasive. The passage from the '048 document, with regard to LIF, discusses culturing ES cells in either the presence or absence of LIF to maintain undifferentiated ES cells, and that the LIF would substitute for the conditioned medium. Applicants' citations in the instantly-filed specification are directed to feeder layers that do not require LIF, and that non-conditioned culture media required to derive and propagate ES cells does not utilize LIF (see, for example p. 17, lines 17-20). Thus, the passage from the '048 patent is directly wholly to using LIF as a substitute for conditioned media, whereas Applicants' specification discusses the absence LIF to culture feeder layers in non-conditioned media. The two points are unrelated to each other, and unrelated to the instant invention, which is conditioned media. Additionally, although p. 22, lines 5+ of the specification do discuss producing conditioned media without LIF, there is no indication that the '048 patent has LIF in the media. The patent teaches the components in the medium used for growing cells to produce the conditioned medium on col. 26-28, bridging ¶ without mention of LIF.

Applicants argue that the conditioned media of Xu requires bFGF in order to maintain the cultures in an undifferentiated state and point to col. 27, lines 50-67

for evidence of differentiation of the cells in the absence of bFGF, whereas Applicants' cells do not require rhbFGF. Applicants submit that these differences provide evidence to show that Xu does not anticipate the claimed invention.

These arguments are not found to be persuasive. The citation Applicants are pointing to discuss the medium are from Example 1-2. These examples are directed to conditioned media from mouse embryonic fibroblasts (MEFs) (see col. 20, lines 44+). It is noted that even if bFGF is required for the human fibroblast-like cells of Xu to condition the media, Applicants have not provided sufficient evidence that the resultant media does not perform the required function (derivation and culture of hES cells in an undifferentiated state). Additionally, Applicants are arguing limitations not found in the claims – there is no limitation for the absence of bFGF in the culture media, and further, no evidence that the presence or absence of bFGF is directed to the cells used to condition the media, and not the resultant conditioned media. This does not provide evidence to show that the cells of Xu and produce different factors or components that would be structurally different than that of Applicants' invention.

Accordingly, Xu (2002) and Xu ('048) anticipate the claims.

Claims 76, 79, 80, 82-84, 93-96 and newly added claims 101-102 remain rejected under 35 U.S.C. 102(e) as being anticipated by Xu *et al.* (2002, of record).

Xu teach the culture of primate pluripotent stem (pPS) cells in the absence of feeder cells, using conditioned medium. See Abstract. They specifically teach that the cells can be human ES cells (see p. 2, ¶ 0014). The cells used to condition the medium can be any cell line, and in particular embodiments, can be a human cell line with the characteristics of fibroblast or muscle cells (p. 2, ¶ 0015). They teach compositions of proliferating pPS cells, and cell lines made from these cells (p. 2, ¶ 0017). They teach differentiating human ES cells to produce fibroblast-like cells which were then used to condition medium to culture human ES cells (p. 3, ¶0036).

They specifically teach the isolation of human ES cell from blastocysts, and the isolation of the inner cell masses of blastocysts in order to establish the ES cell lines. They teach that these cells are replated on MEF feeder layers, in fresh ES medium. See p. 6, ¶0070-0071. They teach that various extracellular matrix components can be used, including Matrigel (p. 7, ¶0082). They teach that human fibroblast-like cells are especially appropriate for producing the conditioned medium (p. 9, ¶ 0109). They teach that to condition the medium, various media can be used, such as KO DMEM (p. 10 ¶0118). They teach producing human feeder cell line (p. 17, Example 7), and culturing undifferentiated ES cells in feeder free conditions using conditioned medium from the human fibroblast feeder cells (Examples 8-9), and culturing undifferentiated ES cells on human fibroblast feeder cells (Example 10).

Accordingly, Xu anticipate the claims.

Claims 76, 79, 80, 82-84, 93-96 and newly added claims 101-102 remain rejected under 35 U.S.C. 102(e) as being anticipated by Xu (2003, of record).

Xu teach producing conditioned media for use in culturing primate pluripotent stem cells in an undifferentiated state (see Abstract). They specifically teach that the primate pluripotent stem cells can be human ES cells col. 3, lines 1-3). They teach that the cells used to condition the medium can be from a human cell line that has the characteristic of a human muscle or fibroblast cell (see p. 3, lines 4-13). They teach that the cells can be obtained any source, but include producing the cells from differentiating ES cells (col. 5, lines 43-48). They teach that the conditioned medium is prepared by culturing the cells in a medium and then harvesting the medium (col. 7, lines 56-58). They teach that media, such as KO DMEM can be used with the cells that are used to condition the medium (col. 7, lines 6-10 and 30-32).

Accordingly, Xu anticipate the claims because they teach a conditioned medium for maintain ES cells in a medium that has been conditioned with a human feeder layer, and separating the medium from the cells to obtain the medium.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 76, 79, 80, 82-84, 93-96 and newly added claims 101-102 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Bodnar *et al.* (of record) when taken with Bongso *et al.* (of record).

*Applicants' Arguments.* Applicants argue that the combination of Bodnar and Bongso render the claimed invention obvious. Applicants argue that Bodnar exemplifies Rhesus monkey cells in a medium conditioned by MEFs, and that they attempt to broaden their scope by using the term "primate", however, it is

indisputable that their conditioned media is (a) not generated by human fibroblast feeders and (b) has not been shown to maintain hES cells in an undifferentiated state. Applicants argue that combining the two references does not cure these deficiencies. Applicants argue that Bongso do not teach conditions or media for deriving or maintaining a human ES cell line, and that Bongso's conditions merely support two passages of ICM-derived stem cells in a stem cell-like morphology and that this would not be sufficient to support a cell line. Applicants argue that Bongso cultures human tubal epithelial monolayers, which are not fibroblasts. Therefore, Applicants argue, that this combination do not render the claimed invention obvious. See page 15 1<sup>st</sup> ¶ of the Response. Applicants argue that the differences between the cells of Bodnar and Bongso (mouse and monkey cells versus human cells) and the types of feeder cells (fibroblast versus tubular epithelium) would not provide those skilled in the art with the requisite motivation to combine the respective teachings of each other. Applicants argue that prior to the filing of the instant invention, the thinking was that feeders were absolutely necessary to maintain hES cells in an undifferentiated state, and not simply to prolong the culturing, therefore, there would be no expectation of success by simply replacing the human feeders with conditioned media to keep hES cells in an undifferentiated state. Applicants argue that the instant invention's results were unexpected because the conditioned media permitted prolonged culturing of the cells, while maintaining the cells in an undifferentiated state.

*Response To Arguments.* Applicants' arguments have been considered, but are not persuasive. With regard to Bodnar *et al.*, the Examiner notes that it is the combination of the references, not solely the Bodnar reference that is used in this rejection. Bodnar does not teach using human feeder cells, as is acknowledged in the rejection. However, they teach producing conditioned medium to maintain ES cells in an undifferentiated state and provide sufficient motivation to modify their methods to produce a conditioned medium from human feeder layers. Additionally,

it is not simply the working examples that are given consideration, but the reference as a whole. In particular, one of skill in the art would recognize that Bodnar, while specifically discussing using monkey ES cells, a primate primordial stem cell would include ES cells (Bodnar, p. 1, lines 14-16), including human primordial stem cells (p. 1, lines 20-22). They teach that their methods are used to maintain the stem cells in an undifferentiated state, and can be used to produce conditioned media (p. 5). Bongso provide guidance to use a human cell line in order to maintain hES cells in an undifferentiated state.

With regard to Applicants' arguments that Bongso was only able to maintain the ICM-derived cells for "two passages", Applicants are arguing limitations that are not within the claims. The claims do not require a specific amount of time in which the cells required to be cultured, the claims only require that the medium be used for deriving and culturing hES cell lines in an undifferentiated state. One could culture an ES cell line in an undifferentiated state, given the combination of the two pieces of art. For example, one of skill in the art would have recognized that fibroblast feeder cells were traditionally used to maintain hES cells in an undifferentiated state, however, given the teachings of Bodnar, one of skill in the art would have also recognized that using mEF conditioned media, one could maintain primate primordial stem cells in an undifferentiated state. Given that Rhesus monkey ES cells and human ES cells have many very similar characteristics, with regard to maintaining the ES cells in an undifferentiated state, one of skill in the art would have also recognized that it would be reasonably expected that human ES cells would also be able to be maintained in an undifferentiated state using conditioned media. Bodnar suggest using a feeder cell of the same species as the embryonic stem cell. One of skill in the art would recognize that this would clearly reduce any cross-species contamination that could occur with growth of cells upon heterologous feeder cells. Bongso provide guidance to show that a human cell line could be used to maintain an hES cell in an

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undifferentiated state. One of skill in the art, noting that human cell lines could be used to maintain human ES cells in an undifferentiated state, would have been motivated to try using human fibroblast feeder cells in the methods taught by Bodnar, with a reasonable expectation of success. Accordingly, it is maintained that the combination of Bodnar and Bongso render the claimed invention obvious.

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*Conclusion*

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thaian N. Ton whose telephone number is 571-272-0736. The examiner can normally be reached on 7:30-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on 571-272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thaian N. Ton/  
Primary Examiner  
Art Unit 1632